CALFED Bay-Delta Program Project Information Form
Watershed Program - Full Proposal Cover Sheet

Attach to the cover of full proposal. All applicants must fill out this Information Form for their proposal. Failure to answer these questions and include them with the application will result in the application being considered nonresponsive and not considered for funding.

1. Full Proposal Title:	**Arroyo Seco Watershed Management Plan and Education Program** (COMBINED PROPOSALS)
Concept Proposal Titles/#:	Arroyo Seco Watershed Management and Restoration Plan, #0149 Arroyo Seco Watershed Education Program, #0060
Applicant 1:	North East Trees
Applicant Name:	Lynne Dwyer
Applicant Mailing Address:	570 W Avenue 26, Ste.200, Los Angeles, CA 90065
Applicant Telephone:	323 441-8634 Fax: 323 441-8618
Email:	Info@northeasttrees.org
Applicant 2:	Arroyo Seco Foundation
Applicant Name:	Tim Brick
Applicant Mailing Address:	539 E Villa St. #2, Pasadena, CA 91101
Applicant Telephone:	626 792-2442 Fax: 209 633-5510
Email:	tbrick@email.com

Fiscal Agent Name (if different from above):	North East Trees
Fiscal Agent Mailing Address:	570 W Ave 26, Ste.200, Los Angeles, CA 90065
Fiscal Agent Telephone/Fax:	323 441-8634 / 323 441-8618
Fiscal Agent Email:	info@northeasttrees.org

2. Type of Project: Indicate the primary topic for which you are applying (check only one)

_____Assessment	_____Monitoring
_____Capacity Building	_____Outreach
_____Education	__X__Planning
_____Implementation	_____Research

3. Type of Applicant:

_____Academic Institution/University	__X__Non-Profit
_____Federal Agency	_____Private party
_____Joint Venture	_____State Agency
_____Local Government	_____Tribe or Tribal Government

4. Location (including County): Arroyo Seco Watershed, 47square miles within the Los Angeles River Watershed, Los Angeles County
   What major watershed is the project primarily located in:
   - _____Klamath River (Coast and Cascade Ranges)
   - _____Sacramento River (Coast, Cascade and Sierra Ranges)
   - _____San Joaquin River (Coast and Sierra Ranges)
   - _____Bay-Delta (Coast and Sierra Ranges)
   - __X__Southern CA (Coast and Sierra Ranges)
   - _____Tulare Basin (Coast, Sierra and Tehachapi Ranges)

5. Amount of funding requested: $762,075
Cost share/in-kind partners? __X__Yes _____No

Identify partners and amount contributed by each: Total $360,000

U.S. Army Corps of Engineers/ The Honorable Xavier Becerra, Congress Member	$100,000
State Water Resources Control Board	$200,000
Mountains Recreation & Conservation Authority/ Santa Monica Mountains Conservancy	$60,000
Total	**$360,000**

6. Have you received funding from CALFED before? _____Yes __X__No
If yes, identify project title and source of funds:

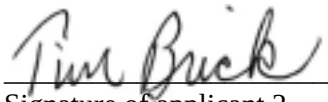
By signing below, the applicant declares the following:

1. The truthfulness of all representations in their proposal
2. The individual signing this form is entitled to submit the application on behalf of the applicant (if the applicant is an entity or an organization)
3. The person submitting the application has read and understood the conflict of interest and confidentiality discussion in the Watershed Program Proposal Solicitation Package and waives any and all rights to privacy and confidentiality of the proposal on behalf of the applicant, to the extent provided in the Proposal Solicitation Package.

Lynne Dwyer
Printed name of applicant 1

Signature of applicant 1

Tim Brick
Printed name of applicant 2



Signature of applicant 2

Arroyo Seco Watershed Management Plan and Education Program

1. Describe your project and its underlying assumptions

North East Trees (NET) and the Arroyo Seco Foundation (ASF) jointly propose to develop the Arroyo Seco Watershed Management Plan and Education Program, a project to research, plan and develop a watershed management plan for the 47 square-mile watershed of the Arroyo Seco, a major tributary of the Los Angeles River in Los Angeles County. The project includes the completion of technical studies and educational programs related to watershed management. This project incorporates the goals and implementation priorities of the CALFED Watershed Program into the watershed management program for the Arroyo Seco, and thereby brings the Arroyo Seco watershed into alignment with significant statewide goals and visions.

The goals of this project are to:

1. Restore the natural hydrological functioning of the watershed, including stream restoration
2. Better manage, optimize, conserve water resources and improve water quality
3. Improve habitat quality, quantity and connectivity
4. Improve recreational opportunities
5. Foster long-term agency and organizational support and collaboration for better watershed management
6. Educate and involve the public in watershed stewardship

The wide variations in climate, ecology, geology, and hydrology support a surprising diversity of plant and wildlife. The upper watershed consists of 32 square miles of the precipitous, erosion-prone slopes of the San Gabriel Mountains. The lower watershed is urbanized, with significant but undervalued areas of open space interspersed throughout. Some of the most diverse neighborhoods in California line the Arroyo Seco from the disadvantaged neighborhoods of Altadena, Northwest Pasadena, and Cypress Park to the affluent enclaves of Linda Vista and San Rafael. Regardless of demographic categories, these communities generally do not make the connection between their lifestyle and practices to their water supply, which is 40% local groundwater in some areas. Tens of thousands of acre-feet of water are imported by the Metropolitan Water District, which taps the Bay-Delta system and the Colorado River. Individual behavior and land use patterns both contribute to growing problems in the watershed such as polluted urban runoff and stormwater, erosion and flood risks, and degraded wildlife habitat.

With substantial agency and stakeholder support, we are now completing the Arroyo Seco Watershed Restoration Feasibility Study. This study includes initial stakeholder input, data collection, and overview research. Technical reports on four basic areas of watershed management – flood and stream management, water resources, habitat restoration, and recreational opportunities will be completed. A full description of the feasibility study and the summary report for Phase I are available on the internet at: http://www.arroyoseco.org/watershedstudy. A thorough online bibliography of Arroyo Seco watershed resources and planning materials can be found at http://www.arroyoseco.org/asbibliosearch1.asp.

a. Expected Outcomes

With CALFED funding for this proposal, NET and the Arroyo Seco Foundation will complete technical studies identified in the feasibility study and expand our education and outreach work. The anticipated outcome is a Watershed Management Plan integrated with the CALFED Watershed Program Principles and Desired Outcomes (as outlined in Sections 3.2-3.3, Watershed Program Plan). The plan will be comprehensive in nature, use integrated problem solving, and incorporate adaptive management feedback opportunities as monitoring and additional data becomes available.

These technical studies will include:

- Engineering: Hydraulics, Hydrology and Geomorphology
- Water Resources Plan
- Habitat Restoration Plan
- Recreation and Open Space Plan
- Stream Restoration Plan
- Development of Demonstration Project Conceptual Designs
- Citizen Watershed Monitoring Program

Through a proposed "Water Wise Watershed" community education and organizational outreach program, we will also build organizational capacity to move ahead with the implementation of the watershed management plan. The primary vehicle for education and outreach will be through the following program elements:

- Development of Education Curriculum
- Development of Outreach Program
- Outreach Program Delivery
- Council of Arroyo Seco Agencies (CASA)
- Council of Arroyo Seco Organizations (CASO)

b. Timetable for Completion

Months	Activities
1	Project Initiation
1-6	Development of Education Curriculum – Water-Wise Watershed
1-6	Development of Outreach Program
1-9	Engineering: Hydraulics, Hydrology Geomorphology
1-9	Water Resources Plan
1-12	Habitat Restoration Plan
1-12	Recreation and Open Space Plan
6-15	Stream Restoration Plan
12-15	Develop Demonstration Project Conceptual Designs
12-15	Citizen Watershed Monitoring Program
1-36	Outreach Program Delivery
1-36	Council of Arroyo Seco Agencies (CASA) (quarterly)
1-36	Council of Arroyo Seco Organization (CASO) (quarterly)

C. General Methodology or Process

NET and ASF will employ the CALFED model - the development of interrelated resource management strategies and agency/stakeholder coordination to achieve a comprehensive approach to solving resource problems[1]. NET and ASF will also follow the adaptive management steps outlined in the Strategic Plan[2]:

NET and ASF will contract with a reputable engineering consulting firm to perform technical studies to fill significant gaps in local knowledge. What are the hydrologic, hydraulic and geomorphic functions and processes in the Arroyo Seco watershed, and their implications for the Bay-Delta watershed? To what extent is stream restoration feasible, with continued flood protection? How will stream restoration and sediment management measures affect the downstream ecosystematic functioning of the Los Angeles River watershed?

Through our Water Resources Plan, we will answer the overarching question, what are the connections and interactions between the Arroyo Seco and the Bay-Delta system? A water budget will be developed to determine pre-development, current, and proposed inputs and outputs into the hydrologic system within this watershed. We anticipate reducing imported water demand through the implementation of project recommendations. The relationship of surface waters to the groundwater basins underlying this watershed will be figured into the water budget. What watershed management goals of the two watersheds, and what related strategies, can be connected and managed through an integrated approach? What is the

[1] CALFED Bay-Delta Program, Phase II Report, Final Programmatic EIS/EIR Technical Appendix, July 2000, p.16.
[2] Ibid., p. 35.

feasibility and effectiveness of various potential Watershed Management Strategies and BMP's, such as stream restoration, to contribute to goals common to both watersheds?

As part of the Water Resources Plan, a Citizen Watershed Monitoring Program framework will be developed. Through this program, local citizens will have the opportunity to practice first-hand stewardship, thereby strengthening the overall impact of project recommendations. We all know healthy watersheds are possible through citizen stewards. The Watershed Monitoring Program will seek to develop the most appropriate methods of monitoring, based upon analysis of the ecologic and human stressor on the system, such as concentrated urban runoff or severely degraded riparian habitat. This framework plan will be the backbone of a future monitoring program within the Arroyo Seco watershed.

With regards to the Habitat Restoration Plan, our most pressing question is, at what point is restoration within the Arroyo Seco watershed adequate enough to support a viable southern steelhead population within the San Gabriel Mountains? Of extreme significance is the prime opportunity to create a viable habitat corridor along the Arroyo Seco, linking the San Gabriel Mountains to the Santa Monica Mountains. Also, current ecological assessments in the upper watershed have revealed severe riparian habitat degradation.

Human systems within the watershed call for assessment and enhancement of recreational opportunities and open spaces. Providing places for local and regional visitors to recreate and renew is important to the project team. The vision is for the Arroyo Seco to become not only a local resource, but a regional natural resource with a variety of opportunities for recreation, recharge and reconnection to nature. The continued protection of our remaining open spaces in perpetuity is of high priority for this project. Those lands will be identified, along with protection and management recommendations.

The combination of the above technical studies, engineering, water resources, habitat restoration and recreation will be feed into a Stream Restoration Plan. This will be the feasible, integrated vision to be presented to agencies with jurisdiction in the watershed for implementation support. Through the development of Demonstration Project Conceptual Designs, these agencies will have a clear picture of the intended restoration measures, and anticipated outcomes of these proposals. This is the final step in the planning process.

CASA and CASO, the two organizational arms established by this project, will be vehicles for the exchange of information and planning coordination. It will bring together organizations and agencies along the whole watershed to begin thinking about the Arroyo Seco as a complex ecosystem. We have found that many of the organizations and agencies in our region are very dedicated to their piece of the Arroyo, but they when introduced to the whole watershed, they become even more motivated and excited. It is particularly important to facilitate coordination among the governmental agencies in the Arroyo ranging from the US Forest Service to local publics departments in order to promote more comprehensive solutions to water quality and conservation, wildlife protection, and wildlife protection, and recreational and open space opportunities.

This project will take the Arroyo Seco watershed planning process to its final phase, the implementation of specific programs, policies, and restoration projects. The resulting shared experiences and knowledge would provide a real-life basis for promoting CALFED goals in innovative ways and to new audiences, and help to refine the principles and criteria for future CALFED funding to include valuable watershed activities in southern California.

Steps for Future Projects:

- Implement stream and upland habitat restoration projects
- Implement Citizen-based Watershed Monitoring Program
- Update restoration and management actions and recommendations

NET and ASF will work with different stakeholder groups in the execution of this project. The proposed Council of Arroyo Seco Agencies (CASA) will be composed of decision-making representatives from agencies and municipalities with jurisdiction within the watershed. It is anticipated that these agencies will continue to participate in this new CASA process, from the current Agency Technical Review Committee (ATRC). In addition, we propose to develop CASO, the Council of Arroyo Seco Organizations, to take the place of the current Stakeholder Committee process. CASO participants will be composed of community organizations and residents, and participate through feedback and also by becoming educated through the project process. We anticipate current stakeholder organizations will continue to be involved in this project.

NET and ASF will guide the process, maintaining focus on the goals of the project and coordination of project elements. To ensure attainment of practical and implementable results, NET and ASF will manage the project to stay with its timeline and budget limits while at the same time facilitating the resolution of conflicts arising from the decision-making process.

In addition to reducing conflicts, NET and ASF will also apply other "solution principles" of the CALFED Bay-Delta Program (page 6, Phase II Report) - equitable solutions that balance a combination of problems, affordability, durability, etc. Regular reporting to CALFED will help maintain project focus and momentum, as well as communicate project activities to CALFED for feedback and participation.

2. Describe your qualifications and readiness to implement the proposed project. *(2 pages)*

North East Trees is developing the project in conjunction with the Arroyo Seco Foundation. Both organizations are community-based non-profit corporations with over ten years of experience; their missions are to green and to restore the Northeast Los Angeles environment while educating the public about stewardship of natural resources.

NET is a highly motivated, technically experienced, personally committed, and very active non-profit urban forestry group founded in 1990 to promote greening and the creation of open space in Northeast Los Angeles. The organization is recognized for its work to renew the urban ecosystem, implement sustainable principles, and for community-based planning and design. The founder Scott Wilson, a devoted teacher, landscape architect, and visionary, has received numerous awards for environmental leadership and achievements in the greening industry, including the Horticultural Society Man of the Year in 2000. Lynne Dwyer, NET's executive director and lead landscape architect, has been the creative power behind more than ten miles of greenway and habitat restoration along the Los Angeles River and the Arroyo Seco. The NET board of directors and staff members include other landscape architects, certified arborists, licensed landscape contractors, landscape planners, educators, and artists. Staff are passionate, highly trained and experienced landscape architects, ecosystematic planners, certified arborists, and community outreach professionals, all of whom are also active leaders in the community.

NET began by planting 2,000 trees on Figi Hill overlooking Occidental College with volunteer labor and donated trees. After carrying out several California ReLeaf Urban Forestry grants, the organization was funded in three separate grants by the California Department of Transportation Environmental Enhancement and Mitigation Program (EEMP) for a total of $960,000 in a phased program to plant trees in the L.A. River and the Arroyo Seco. Los Angeles County Proposition A grants of $298,000 and $450,000 for additional projects on the LA River were obtained in 1996 and 1997. In 1995 and again in 1997, NET received Prop A funding for campus and street tree planting for the LA Unified School District (LAUSD) Green Islands Projects; the combined project value is $261,000. NET is a co-participant in the Los Angeles Department of Water and Power's Cool Schools Program, the largest citywide school-based tree planting program in Los Angeles history, for which it is managing a total of $1.3 million for school-based projects. In 2000, NET developed a new Children's Arboretum, began its Coastal Conservancy-funded "Arroyo Seco Watershed Restoration Feasibility Study," and also has been awarded $250,000 for its EEMP Los Angeles River and Arroyo Seco Miniparks project. In 2001, NET is working with the Chinatown Alliance to develop park and multi-use concepts for the Cornfields, a large Brownfields property; and developing a "Confluence Park District" concept for the confluence of the Arroyo Seco with the Los Angeles River.

The Arroyo Seco Foundation (ASF), a non-profit 501©3 education and action organization, dedicated to protecting and enhancing the Arroyo Seco watershed from the San Gabriel Mountains to the Los Angeles River through education and action projects. For twelve years ASF has undertaken watershed programs such as tree planting, stream and habitat restoration, clean-ups, planning and education programs related to the Arroyo Seco in Pasadena and the nearby mountain watershed. Working closely with Pasadena, Los Angeles County, the US Forest Service and community based organizations. The Arroyo Seco Foundation has helped make the Arroyo Seco the most promising model for effective watershed management in southern California. We invite you to visit the Arroyo Seco Foundation website to consider a more thorough presentation of the project areas and of the planning efforts and restoration projects: http://www.arroyoseco.org.

a. Describe the level of institutional structure, ability and experience to administer funds and conduct the project. Identify the fiscal agent responsible for handling the funds.

NET, the fiscal agent for the project, employs a Certified Public Accountant and bookkeeping staff, who report to the Executive staff for financial controlling. NET is in a financially solid position, and additionally has a credit line of $120,000 with the Bank of America on Colorado Boulevard, Eagle Rock, Los Angeles. North East Trees has successfully managed projects of scale equivalent to or greater than the proposed project for ten years - please see attached "Selected Projects List" for additional project information.

b. Describe technical support available (including support needed for environmental compliance and permitting) to begin and complete the project in a timely manner.

The Agency Technical Review Committee, already working with NET and ASF on the Coastal Conservancy funded phase of the watershed project, is the primary line of support for the project. Expert representatives from numerous agencies working on watershed issues attend regularly scheduled meetings and review the Arroyo Seco project. These agencies representatives will advise and participate in the ongoing plan development and implementation process.

NET and ASF will also continue to contract with engineers, biologists, GIS consultants, and other experts such as those who have completed the Arroyo Seco Watershed Restoration Feasibility Study. These experts have themselves participated in other watershed projects locally and throughout the West and are considered leaders in their respective fields.

c. List any previous projects of this type you or your partners have implemented, funded either by CALFED or other programs.

NET and ASF are currently implementing the "Arroyo Seco Watershed Restoration Feasibility Study," begun in the summer of 2000. This project, funded by the California Coastal Conservancy and Santa Monica Mountains Conservancy, is evaluating the feasibility of project goals including full stream restoration. The project has produced its Phase I Summary Report. NET also has submitted a proposal to the State Water Resources Control Board for $200,000 under Proposition 13 to promote additional work for the Watershed Plan.

NET has completed over 135 projects, planted and cared for over 18,000 trees and demonstrated proficiency in large urban greening projects as well as in smaller community plantings. In each of these projects, NET scrupulously applied professional landscape design, planning and construction standards, sponsored community meetings and educational workshops, trained and employed at-risk youth technicians and crew members, and created community events to invite volunteers, school student groups, and community businesses to participate. NET has a solid reputation among government, education, community, and urban forestry partners. The staff's professional attitude, and knowledge of the issues and stakeholders in the Los Angeles, has earned NET its credibility as a community leader.

The Arroyo Seco Foundation has been an integral part of Arroyo Seco planning efforts in Pasadena and the upper watershed for more than twelve years. Foundation members have participated in the planning and development of Hahamongna Watershed Park, the low-flow stream restoration program in Pasadena's Lower Arroyo, and the Central Arroyo Master Plan. ASF has developed tree-planting and training programs funded by the US Forest Service, Department of Agriculture, Caltrans, California Department of Forestry and Fire Protection, and other agencies.

3. Provide a completed budget cost sheet including Matching and In-Kind.

Please see attached Summary Budget and Detailed Budget sheets.

a. Describe the basis for determining project costs, including comparisons with other similar projects, salary comparisons, and other listed costs.

NET and ASF have performed past projects of similar size, including the Arroyo Seco Watershed Restoration Feasibility Study. Budget estimating is based in part on staff professional experience in managing and delivering products. NET developed the Scope of Work for Phase I and II of the Arroyo Seco watershed project currently under way, for and in coordination with its consultants. The Scope of Work has been reviewed by the project's Agency Technical Review Committee, comprised of key public agency representatives. Many costs are being born by participating agencies through official agreements for in-kind services and staff time to participate and give input to the technical studies and plan development process. Services and in-kind contributions include hardcopy and GIS data, mapping, hydrologic modeling, digital aerials, and participation in the ATRC and stakeholder meetings.

Project costs are based on actual rates of in-house staff, staffing (labor-hour) requirements of the project estimated on a task-basis, anticipated materials, contractor rates and previously defined task lists, and known costs for other required activities. Direct project costs for travel, equipment and rental, supplies, data, and so forth will be based on prices researched from reasonably priced available vendors and suppliers. The Project will not require any environmental compliance costs, such as CEQA, NEPA, or any other permits.

b. Describe how the approach to achieving the stated goals of the project demonstrates an effective cost relative to its anticipated benefits. *(2 pages)*

The southern California region presents a significant challenge on numerous fronts to the achievement of CALFED's initial implementation priorities. Simultaneously, this project proposal, with its existing momentum, successful track record of the applicants, significant knowledge of the local watershed, and broad-based stakeholder involvement, represents a rich vein of opportunities that will prove to be a solid investment for the CALFED program.

"If you fail to plan, you plan to fail;" a plan is required in order to achieve common understandings and goals among a wide range if interests and needs. This plan will be comprehensive in nature, use integrated problem solving and interrelated management strategies, and incorporate adaptive management. As very aptly described in the Phase II Report, this comprehensive approach is the "most important single difference between [present CALFED] and past efforts" that failed to balance and connect goals and strategies. Rather than repeat the mistaken approaches of the past, which ended many efforts in costly litigation, blocked implementation, and/or resulted in implementation with undesired effects, NET and ASF will take a carefully considered approach, modeled after the CALFED program itself, to achieve cost-effectiveness.

The proposed technical studies are the only available means to properly understand and maximize anticipated and desired benefits. The scientific basis for implementation is still not anchored to local conditions and there are gaps in knowledge. The technical studies will be used to properly define, evaluate (including determining the anticipated benefits), prioritize, and integrate management strategies within the Arroyo Seco watershed context. The implementation of the interrelated management strategies will then be the key to implementing efficient and effective costs relative to the pre-defined and anticipated benefits to both the Bay-Delta system and to the Arroyo Seco watershed.

The project's education component also is an effective cost for the project benefits. The CALFED program will gain a significant foothold for the first time into a major area of problems and potential solutions - the southern California solution area. The education component will take advantage of a rising tide of interest and investment in watershed and water resources management to reach a wide audience and affect critical institutional changes.

Costs for NET and ASF staff is based on individual salaries of project team members (weighted for payroll taxes and benefits) and the time required to achieve professional results for the project goals. Staff salaries are comparable if not lower than those of industry standards for landscape architects and planners. Indirect costs including overhead, insurance, and administration is a fixed cost of the project at 15% based on actual costs. The benefits/salary percentage is 38%. NET contracts for services for which it does not have staff, or when project management deems it to be appropriate and cost-efficient.

c. Successful proposals that commit cost-sharing funds must have commitment of these funds within 30 days of notification of approval of the full proposal.

The project has already garnered strong support and participation from the local community and agencies. Participating cities include Los Angeles, Pasadena, and South Pasadena. Public landowners such as the City of Los Angeles Department of Recreation and Parks and County Public Works currently participate, and will continue to do so, in the monthly Agency Technical Review Committee meetings. Community supporters include the Highland Park Heritage Trust, the Audubon Society, the Gabrielino/Tongva tribal community, the LA County Bicycle Coalition, and local, county, state, and federal elected officials. Quarterly community and stakeholder meetings will account for participation and involvement by community organizations and individuals. Matching and in-kind resources for this CALFED grant application include:

- U.S. Army Corps of Engineers/ The Honorable Xavier Becerra, Member of Congress $100,000
- State Water Resources Control Board (anticipated in May 2001) $200,000
- Santa Monica Mountains Conservancy /Mountains Recreation & Conservation Authority $60,000

Total $360,000

Other past funding agencies for the current Arroyo Seco Watershed Restoration Feasibility Study include:

- California State Coastal Conservancy $250,000
- Santa Monica Mountains Conservancy /Mountains Recreation & Conservation Authority $130,000
- L.A. County Dept of Public Works Watershed Management Division $150,000
- U.S. Army Corps of Engineers * $25,000

- US Forest Service in-kind
- Cal Trans in-kind
- State Dept of Fish and Game in-kind
- Metropolitan Water District in-kind
- Los Angeles & San Gabriel Rivers Watershed Council in-kind
- National Park Service Rivers and Trails Conservation Assistance Program (RTCA) - technical assistance, stakeholder process facilitation in-kind

Total **$555,000**

* The Army Corps of Engineers is contributing $25,000-$40,000 of discretionary funds for the project in anticipation of reconnaissance and feasibility studies. Given this early commitment, additional funding is expected to follow.

4. Describe the technical feasibility of the proposed project. (2 pages)

Our program is sound and technically based. We are using state-of-the-art GIS planning tools and the services of outstanding technical experts in hydrology, hydraulics, biology, and watershed management disciplines. The County of Los Angeles Department of Public Works Watershed Management Division has provided more than $150,000 in technical support and undertaken watershed modeling programs in coordination with our watershed restoration feasibility study. The Corps of Engineers has initiated its own technical studies of hydrology and hydraulic issues in the Arroyo Seco in coordination with our efforts. We have employed the services of Montgomery Watson Harza for hydrology, hydraulics and geomorphology.

The Arroyo Seco watershed planning process involves public outreach and education for which NET and ASF will promote information exchange. Members of the active Agency Technical Review Committee (ATRC) for this project actively participate in the review of project documentation and reports, and will also continue to serve in the same capacity for the proposed CALFED project. Members include the Mountains Recreation & Conservation Authority/ Santa Monica Mountains Conservancy, the State Coastal Conservancy, National Park Service, US Forest Service, Cal Trans, State Dept of Fish and Game, Metropolitan Water District, Los Angeles County Dept of Public Works new Watershed Management Division and City of Los Angeles Stormwater Division and Recreation and Parks Department.

The products of the proposed project – study results, maps and GIS documents, BMP concepts, and Management Plans and Recommendations will be supplied to CALFED for their use and dissemination. A website is in development that will facilitate dissemination of information about the project. As part of their mission, North East Trees and Arroyo Seco Foundation staff and activists also will continue its long-term program promoting the values and principles of ecosystem-based management. Activities include participation in community watershed networks, conferences, governmental processes, and community forums from the local to the national platform, ongoing education through literature and media campaigns, and the development of collaborative demonstration projects that make use of matching resources and volunteer participation. NET and ASF is very interested in learning to use existing opportunities through the CALFED Programs to present, disseminate, and exchange information within the CALFED Program as well as with watershed managers from other regions in California and beyond.

a. Describe any similarity to previously implemented successful projects in this community or elsewhere.

We view the Bay-Delta program as a model for stakeholder and agency participation in the development of a comprehensive watershed management. We are making the same connection between watershed management and water supply reliability that characterizes the CALFED program. The Arroyo Seco has been the scene of ongoing watershed planning efforts that have led to the rehabilitation of Devil's Gate Dam in Pasadena, the establishment of Hahamongna Watershed Park and planning efforts for the development of Confluence Park where the Arroyo Seco meets the Los Angeles River. There are other mountain/urban watershed with significant flood threats such as Taipei, Taiwan and Sao Paolo, Brazil, which offer lessons for our watershed planning. But in California the Arroyo Seco program is setting a precedent for multi-agency coordination in a mixed mountain/urban watershed.

b. If the project proposes a new approach or new method with a high likelihood of adding new knowledge and or techniques, or with the potential to fill identified gaps in existing knowledge, describe how it will do so, and what monitoring components will provide substantiation of results.

Streams and rivers in California flow through dry, semi-arid regions lined by steep, erosion-prone hillsides and mountains plagued by periodic wildfires. These unusual conditions aggravate flood and stream management issues in the southern part of our state and make the restoration of natural steam hydrology more challenging. The Arroyo Seco offers the greatest potential for such stream naturalization in urban areas in southern California and can serve as a model for other southern California streams and watershed.

Most of the urbanized half of the Arroyo Seco stream south of Devil's Gate Dam has been diverted into a concrete channel that has robbed the region of appropriate habitat, water resources and biological diversity. Our feasibility study documents that significant stretches of the Arroyo Seco stream can be restored to a more natural hydrologic function without diminishing flood protection. Our goal is to remove the concrete and restore stream function in a densely populated region where thousands of people will be able to appreciate the natural ecosystem and gain a better understanding of watersheds and water resources.

Regional benefits of the Arroyo program include protection of water quality and the groundwater supply, habitat connectivity between the San Gabriel and Santa Monica Mountains, recreational linkages from the San Gabriel Mountains to the Pacific Ocean via trail networks, and protection from flood risks. Ongoing benefits to the community also include increased management efficiency resulting from mutual understanding and coordination, and an increase in individual environmental stewardship stemming from improved public awareness. It is hoped that the Los Angeles-San Gabriel River systems and the Arroyo Seco will one day be restored to support a viable southern steelhead trout habitat up to their historic spawning grounds within the San Gabriel Mountains.

c. How the finished project will be maintained as necessary, and to what degree it may require continued funding from outside the community.

We are working closely with the agencies with operational, management and permitting responsibility for the Arroyo Seco through our Agency Technical Review Committee. These are the agencies that will be responsible for the implementation of most of the restoration projects and funding their maintenance. We are now actively seeking California support from Propositions 12 and 13 as well as federal support through the Corps of Engineers appropriation process. We also anticipate that the cities involved, particularly Pasadena, South Pasadena and Los Angeles will incorporate much of our watershed goals and process into their planning for the sections of the Arroyo that lie within their boundaries. As our plans solidify we are identifying sponsors for funding, implementation and maintenance of each of the major program elements.

5. Describe how the monitoring component of the project will help determine the effectiveness of project implementation and assist the project proponent and CALFED with adaptive management processes. ***(3 pages)***

a. Identify performance measures appropriate for the stated goals and objectives of the project.

With this proposal, the project team will have the necessary restoration plan and accompanying hydrologic and hydraulic models needed to proceed with the implementation of demonstration projects that will bring us one step closer to meeting our four project goals.

- Goal 1 is to restore the natural hydrological functioning of the watershed through stream restoration while maintaining and enhancing flood protection. Measurable objectives include the implementation of multiple-purpose Best Management Practices (BMP's), such as reforestation, bioengineering, and/or other non-structural approaches for flood management and stream restoration. We will plan for the continued protection of life and property by maintaining the existing level of flood protection. There will be an evaluation of possible flood hazard reduction in the Los Angeles River resulting from Arroyo Seco mitigation efforts. We will review existing storm drain systems for the possibility of daylighting tributaries within the watershed. Finally, a management plan to restore sediment movement through the watershed to reduce maintenance over time will be developed.
- Goal 2 is to reduce dependence on imported water through better management and conservation of water resources while improving water quality. Of great importance is to increase groundwater percolation throughout the watershed, reducing dependence on silted-up fixed percolation ponds. At the same time, we will aim to restore the quality and quantity of water recharge to the Raymond Aquifer. These objectives will be developed in conjunction

with the reduction of volume and velocity of storm water runoff through BMP implementation. Surface water quality will be improved for aquatic habitat and safe for human contact. Water conservation recommendations will be made to jurisdictional agencies.

- Goal 3 is to improve habitat quality, quantity and connectivity. One of the most important objectives is to protect, restore and conserve critical gaps in the wildlife corridors in order to create a continuous linkage between the San Gabriel Mountains and the Santa Monica Mountains. Our habitat restoration plan will include recommendations to augment and restore missing species from plant and wildlife communities, including southern steelhead. Also, we will work towards restoring aquatic species habitat as well as restoring terrestrial habitat in the riparian zone. Finally, implementation of our plan will enhance and strengthen the urban interface zone for the benefit of both wildlife and human activities.
- Goal 4 is for the benefit of human systems, the need for enhanced and improved recreational opportunities. This will be accomplished through improved public access from the Angeles National Forest to the coastal shore by building and linking trails, stairways and bikeways. A range of recreational activities for diverse interests will be considered. Opportunities for public access and use of the watershed's rivers and streams will be provided. And most importantly, recommendations to mediate the conflict between recreation and conservation will be made through planning and design.

b. Describe how this project will coordinate with and support other local and regional monitoring efforts.

In the spirit of cooperation with other agencies and organizations, NET and ASF keep abreast of and participate in various monitoring efforts that are taking place in this region. In September 2000, the Los Angeles and San Gabriel Rivers Watershed Council trained volunteers for a two day water quality event. This "snapshot" of water quality within the Los Angeles River watershed is the first comprehensive effort to obtain data on a watershed scale. The Arroyo Seco was one of the tributaries to be included in this event. NET and ASF intend to include the results from this event in preparing a monitoring program for the Arroyo Seco subwatershed. In a program called RiverWatch, Friends of the Los Angeles River (FoLAR) is continuing citizen water quality monitoring efforts along the Los Angeles River. FoLAR and NET frequently collaborate on Los Angeles River activities, as well as occupy the same building. Arroyo Seco data will enhance the RiverWatch program with tributary data. NET staff have been involved in developing the regions' highly regarded Malibu Creek Watershed citizen-based Stream Team program through Heal the Bay. Expertise from this effort will be incorporated into the Arroyo Seco monitoring framework plan.

c. Provide a description of any citizen monitoring programs that will be part of this project.

Our project will develop a framework plan for volunteer based water quality monitoring and stream habitat assessment to quantify project results. A watershed-wide inventory and analysis to water quality degradation will reveal locations of non-point sources and point sources of pollution. Subwatersheds will be examined and prioritized for their contribution to pollutants into the Arroyo Seco. From this analysis, the most appropriate forms of monitoring will be recommended, and a program developed. The most likely forms of monitoring will include water quality monitoring in the form of chemistry test kits and meters at pre-determined sites, and the mobile stream habitat assessment teams. The plan for water quality monitoring plan will develop a systematic, volunteer-based program to sample water and evaluate the effect of trash, algae and contaminants on water quality in the watershed. We will also develop a framework for a program in which volunteers will physically inspect steam conditions and the effects of restoration programs and quantify the benefits, inspecting conditions such as:

- Discharge points and outfalls
- Unstable bank conditions
- artificial streambank modifications
- impacting land uses
- large patches of exotic and/or invasive vegetation
- barriers to fish passage
- illegal dump sites

Water quality monitoring provides the needed baseline of existing conditions data, against which the success or failure of implementation measures will eventually be measured. Assessing water quality above and below point-sources of pollution, as well as downstream of probably areas of non-point source pollution are a good indicator of where to concentrate BMP or other water quality improvement measures. Over time, implementation and management measures will be altered and

reconsidered as more data becomes available. This is why the framework plan is important, to allow for adaptive program management.

Monitoring activities can refine project goals and objectives. For example, a stream assessment team will walk up an Arroyo Seco tributary. During a stream walk, if large, undocumented patches of exotic riparian vegetation are discovered, their locations will be marked using the GPS device. This data will be downloaded into the project's GIS database of habitat mapping. These exotic plant patches will be evaluated for their significance within the larger habitat and stream restoration plan. If they are shown to be a stressor on potential prime southern steelhead habitat, then restoration of this patch becomes a new priority, altering previous management recommendations.

d. What monitoring protocols will be used, and are they widely accepted as standard protocols?

The Los Angeles Regional Water Quality Control Board has identified three principal pollutants in the Arroyo Seco, trash, algae and coliform. Algae is the result of high amounts of nutrients from such sources as fertilizers, car washing activities and other urban activities, depleting the water of necessary levels of oxygen. Based on this information, the implementation of a water chemistry monitoring program will be critical for determining current levels of water quality, and assessing the success of future implementation projects.

In addition, stream walk assessments will be undertaken in order to assess the physical health of the Arroyo Seco and it's tributaries. Baseline information about current conditions will be needed in order to measure the success of restoration efforts. It is currently known that the upper watershed, riparian habitat is degraded. Stream walk assessments will give agencies the information needed to take appropriate actions for restoration and for management recommendations.

e. Describe how the type and manner of data collection and analysis will be useful for informing local decision-making?

Water quality data collected by well-trained citizen volunteers will need to meet EPA standards with a high level of quality assurance/quality control for usefulness by local, state and federal agencies. Commercially available test kits and meters will be recommended by this proposal. For the stream walk assessment teams, utilizing Geographic Positioning System (GPS) units will be recommended. Information such as patches of exotic pest plant species, discharge pipes or dump sites can be downloaded into the project Geographic Information System (GIS). This data will be readily usable by the project team, or agencies interested in water resources in the region.

6. If this project is to develop specific watershed conservation, maintenance or restoration actions, describe the scientific basis for the action(s) described in the proposal. *(2 pages)* Include:

a. Any assessment of watershed condition(s) that has already been developed by you or others.

The Arroyo Seco Foundation and North East Trees are now completing the Arroyo Seco Watershed Restoration Feasibility Study. There have been a series of planning studies in the last fifteen years that have examined watershed conditions in the Arroyo Seco, including a groundwater management and conjunctive use study of the Raymond Basin fed by the Arroyo Seco, a sanitary study of contaminants and potential contaminants, biological baseline studies, and a series of master plans developed for the major part of the Arroyo Seco. The City of Pasadena has spent more than $1 million on master plans in the Arroyo Seco and is now pursuing a comprehensive Environmental Impact Report on the five miles of the Arroyo Seco that lie with its boundaries. We have carefully collected and evaluated all of these studies in Phase I of the feasibility study. Hydrology and hydraulic studies are now being completed as part of that study. A bibliography of more than 700 previous studies, articles, photographs and documents can now be accessed online at: http://www.arroyoseco.org/asbibliosearch1.asp

In addition there are now many related studies that complement or relate to our watershed program. The following table has been adapted from the Arroyo Seco Watershed Restoration Feasibility Study's *Phase I Summary Report.*

Table 1: Current Related Studies			
Study	**Agency**	**Due**	**Description**
Watershed Overview	LA Co Dept. of Public Works/ Corps of Engineers	6/15/01	Major mapping study and survey of the LA and SG River watersheds including the Arroyo Seco
Arroyo Seco Corridor Management Plan	California Department of Transportation	2002	Comprehensive master plan to restore the historic character of the Arroyo Seco Parkway
Arroyo Seco/LA River Confluence Park Plan	Mountains Resources & Conservation Authority	2001	Park Plan for the confluence region just north of downtown Los Angeles
Watershed Mapping	LA Co Dept. of Public Works	3/1/01	Part of County DPW's mapping of the LA River
Watershed Hydrology Study	LA Co Dept. of Public Works	3/1/01	Watershed hydrology model of the Arroyo Seco
Arroyo Master Plan & EIR	City of Pasadena	6/30/01	Master Plan for Hahamongna, Central and Lower Arroyo plus environmental documentation scheduled for public review in June and city approval in September, 2001
Arroyo Park Plan	City Of South Pasadena	4/1/01	Review of whether South Pasadena should accept state funding for 4 acre park in the Arroyo
Lower Arroyo Seco Update	City Of Pasadena	4/1/01	Update and completion of the Lower Arroyo Master Plan, conceptually approved by Pasadena in 1997
Angeles Forest Master Plan	US Forest Service	2002	The Forest Service is now updating their master plan for the Arroyo Seco.
Arroyo Southwestern Toad Critical Habitat Designation	US Fish & Wildlife Service	2/7/01	A six mile stretch of the Arroyo Seco extending from Hahamongna/Devil's Gate reservoir for seven miles to Long Canyon has now been formally designated as critical habitat for the endangered arroyo southwestern toad.

b. Previous assessment(s) used to establish your project goals and objectives, or to inform the basic assumptions of your proposal.

The vision for this watershed project is to restore the Arroyo Seco to a naturally functioning stream system. Currently, almost all of the lower urban sections of the stream are channelized in concrete for flood protection purposes. In the middle portion of stream, hydrologic functioning has been greatly altered through the diversion of the runoff originating in the National Forest, with fixed and silted percolation ponds, and with Devil's Gate Dam. The upper watershed within the National Forest is dotted with crib dams, a silted-up 100' dam, and extensive degraded riparian habitat.

The Arroyo Seco watershed program has carefully built on the work of previous studies. Our vision of stream restoration stems from the basic assumption that it is possible to restore an engineered concrete channel to a natural stream ecosystem, while maintaining flood protection. The vision for what constitutes a natural stream ecosystem is from historic conditions, including meandering and braided streambeds, a wide floodplain, steelhead trout and carnivores. Appropriate hydrologic and hydraulic modeling will be the primary tool to determine the feasibility of various restoration scenarios. We also understand that in southern California, reducing dependence on imported water is of high importance.

c. A description of the scientific assumptions used to develop the project goals, objectives and proposed actions, and the degree to which those assumptions are widely accepted (both in the science community as a whole, and in the watershed community).

The basic scientific assumption throughout this project is that stream restoration through removal of the existing concrete flood control channel is possible. Through hydrologic, hydraulic and geomorphic modeling, the project engineers will assess the feasibility of partial or full removal of the channel, without increased flood risk. This assumption is the behind the vision driving the project. It is accepted by the consulting engineers, and Agency Technical Review Committee members such as the Los Angeles County of Public Works Watershed Management Division and others. The watershed community in southern California embraces the vision of full stream restoration, only it has yet to be done here.

Ecological restoration of freshwater stream and riparian habitat is also deemed possible by the biology/ecology consultant team on the current project. Once the feasibility of the hydrologic system is determined, it is felt that habitat restoration is very much a reality. The ultimate vision for habitat restoration is the possibility of welcoming southern steelhead trout once again to the waters of the upper Arroyo Seco. Also of great importance is the assumption that a contiguous habitat corridor can be established along the urban portion of the Arroyo Seco, linking the San Gabriel Mountains with the Santa Monica Mountains.

d. A discussion of how the proposed actions are (are not) consistent with the scientific assumptions and previous assessments completed in the watershed.

This project will be consistent with the Arroyo Seco Watershed Restoration Feasibility Study, the first comprehensive evaluation of the watershed. Previous studies have focused on various aspects of the watershed and its management, such as groundwater storage, water quality, dam rehabilitation, sediment management, biological issues, or various sections of the Arroyo Seco. Now the feasibility study presents a thorough overview of all the major factors involved in watershed management. Technical studies will examine critical issues to develop the most effective solutions. Our approach generally builds positively off previous studies, although there are a variety of approaches to issues such as recreational planning and stream values in some of the previous studies. There is also a clear pattern of development of a more sophisticated and comprehensive approach to watershed management, which is greatly added by the positive of programs like the CALFED watershed management program and other restoration efforts.

e. A description of what baseline knowledge was used to support the management actions described in the proposal, or the likelihood that the management actions will generate more robust baseline knowledge.

The baseline knowledge used to support the management and educational programs contained in our project is described in a very thorough fashion in the Arroyo Seco Watershed Restoration Feasibility Study – Phase I Summary Report. This report, issued in March, 2001, can be found in its entirety online at http://www.arroyoseco.org/summaryreport.htm. The technical studies associated with our project will refine this work, focus in critical technical issues, and the development of practical solutions.

7. Goals and Objectives of CALFED

a. How will the proposal address multiple CALFED objectives (see Section I) in an integrated fashion, with emphasis on water supply reliability, water quality, ecosystem quality, and levee stability objectives CALFED has established for Stage 1 of the program? *(2 pages)*

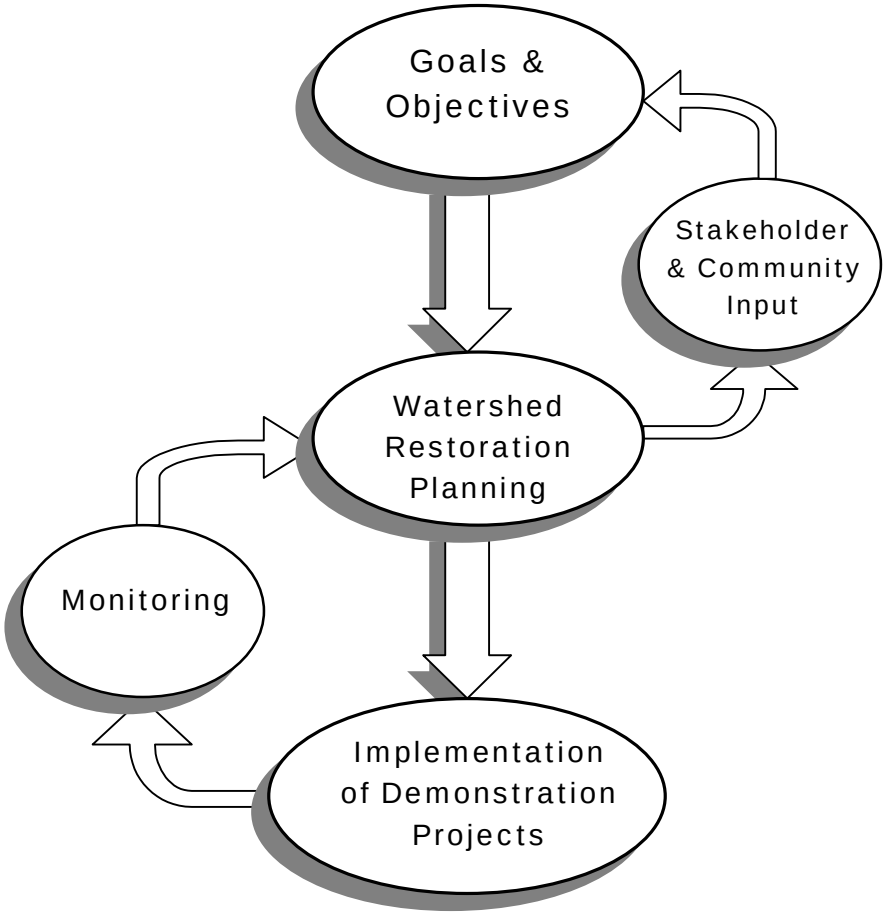
Some of the CALFED Watershed Program objectives are already in the process of being met by current project efforts. Others will occur through funding of this proposal. A key objective, collaboration among government agencies and major stakeholders is already underway. Through our multiple levels of stakeholder meetings and the current Agency Technical Review Committee (ATRC), we are seeing a high level of interest and cooperation among key agencies and organization with jurisdiction or interest in the Arroyo Seco watershed. We intend to continue these processes throughout the life of this restoration project.

Taking advantage of the interest and momentum of the Arroyo Seco Watershed Restoration Feasibility Study now being completed, this project will organize and coordinate two organizational arms, the Council of Arroyo Seco Organizations (CASO) and the Council of Arroyo Seco Agencies (CASA). These organizations will meet on a quarterly basis to discuss and coordinate watershed management issues. CASO will include the major community-based and environmental organizations concerned about the Arroyo Seco. CASA will involve the agencies that own, manage or have a regulatory responsibility in the Arroyo.

The project planning team is employing ecosystematic planning principles to inventory and assess the natural and human components of the watershed system. With expertise in watershed planning and management, landscape architecture, conservation ecology, hydrologic engineering, urban design and water resources, the planning team is well poised to develop a watershed management and restoration plan that will integrate major issues of groundwater recharge, stream and terrestrial habitat restoration, flood protection, water quality, and recreation planning. The team is utilizing GIS and other techniques to analyze and prioritize possible suitable sites for future demonstration projects.

Adaptive management is an integral part of the watershed restoration and management planning process. (See following flow diagram.) Feedback loops throughout all stages of this project allows for continued stakeholder input and the integration of new information into an existing restoration planning framework. The following exhibit diagrams the key components of this planning process. Monitoring is one of the key components of the Arroyo Seco watershed project. The following diagram clearly indicates that Monitoring must occur after Implementation of Demonstration Projects, and fed back to the Watershed Restoration Planning component before Implementation can be considered successful. The other primary feedback loop occurs in the first phases of the process with Stakeholders and Community members providing input to help shape Goals and Objectives, which in turn drive the Watershed Restoration Planning.

The CALFED Bay Delta Program is the largest and most important watershed management program in the West. It has established the momentum for better watershed management. In educating and activating people about their own watershed,



this proposal will also help them understand how they impact other watersheds, such as the Colorado River system and the Bay-Delta ecosystem. The two-fold thrust is the most powerful motivation for conservation. Through the development of educational programs, this project will promote individual and institutional water conservation, local water retention, groundwater management and water recycling to relieve the strain on the Bay-Delta ecosystem. We will help people understand how they impact the Bay-Delta system and how they need to contribute to solutions by reducing their water use and helping to pay for ecosystem and watershed restoration.

This project will assist CALFED in creating a new presence in a region that simultaneously impacts the Bay-Delta and has misperceptions about its connections and roles. This project provides CALFED an opportunity to familiarize itself with, and make itself known to the large group of local communities and agencies already involved in the Arroyo Seco planning process and vice versa. The Arroyo Seco project also will provide CALFED with a positive early experience of working with the physical, social, technical, and political parameters unique to the Los Angeles area. North East Trees' president Scott Wilson sits on the Advisory Board of the Los Angeles and San Gabriel Rivers Watershed Council, whose monthly meetings includes a broad spectrum of stakeholders from government agencies, organizations, and professional consultants. CALFED would have opportunities to be involved in these settings, to network and participate in exchanges. Last but not least, the project's emphasis on technical, research-oriented objectives, Water Wise Watershed education, and the participation of associated professionals will open up a new set of opportunities for CALFED to undertake the discovery process of the issues, connections, and innovations that will accrue benefits to the Bay-Delta system.

b. Explain how the proposal will help define and illustrate relationships between watershed processes (including human elements), watershed management, and the primary goals and objectives of the CALFED (see Section I).

Over the years, as the population in California grew, the demand for land and water resources increased significantly. The results of this demand include alterations of the natural hydrologic cycle and ecosystem functioning at varying scales in California and the western United States. The problem in northern California is not longer just a local issue with local solutions. It is no secret then that any effort, especially in southern California, to reduce dependence on imported water is of benefit to not only the CALFED Bay-Delta system, but to Owens Valley and the Colorado River watershed. Effective watershed management plans and their implementation will have a positive ripple effect on all of CALFED's integrated program elements. In our project, the hydrologic cycle will be analyzed, including understanding the interrelationships of surface flows, groundwater and imported water inputs and outputs. But the implications of watershed management measures in the Arroyo Seco will be far reaching.

The Arroyo Seco restoration program is being undertaken from the perspective that watersheds function as geographic and ecological units. This approach is also based on the supposition that natural and human landscapes can be described using a similar, ecosystem-based approach, one which derives primarily from the field of ecology, but which has been gradually integrated in the past few decades into various fields within the broader discipline of environmental design. Rather than focusing on the disparities and duality of natural and human-made landscapes, the project team's approach to this study derives from an assumption that the Arroyo Seco watershed comprises one large, integrated system in which all components, to some varying degree, are interrelated. It is also recognized that the watershed is not an isolated entity but one that is linked to other landscape units. In order to understand the watershed, the project team's approach to this study is based on describing the watershed in terms of its physical structure or form; the processes, functions or flows that take place within and beyond the watershed boundary; and the dynamics which affect the change of watershed through time.

In the book Design for Human Ecosystems (1985), the late John Tillman Lyle outlines a design process in which natural systems can co-exist with human systems. The principles of ecosystematic design provide the basis for this project. Through an ecosystem-based design process, it is the intent of the project to shape the structure of the watershed's landscape to guide watershed processes toward a trajectory of change through time which will balance the needs of the floral, faunal and human inhabitants and their environments. An ecosystem can be described as the interacting assemblage of living things in a given space and their nonliving environment (Forman and Godron 1986, Lyle 1985). Though this may imply that an ecosystem is a unit that is closed or discrete in its boundaries, it is important to keep in mind that ecosystems are open systems. They do not stand alone. The understanding of the connections between adjoining and overlapping ecosystems and dynamics between them are critical to understanding any ecosystem. It is also important to understand that humans and their activities are an integral part of most living ecosystems. The Arroyo Seco watershed ecosystem interacts with the Los Angeles River, the San Gabriel Mountains, the San Rafael Hills, and the San Gabriel River watershed.

Central to this process are four criteria upon which success of a planning process is measured: capacities for complexity, predictability, defensibility, and communicability. Ecosystems are complex. The ability to use and synthesize a great deal of information from various disciplines is required to analyze and plan for them. The ability to estimate the potential effects of design alternatives is critical in the ecosystematic design process. Also important is a clear and logically correct framework of objective observations that will support the final recommendations. Integral to this process is the participatory inclusion of people who are affected by the final recommendations. Lastly, a successful ecosystematic design process is communicated in a clear, often graphic way that is understood by the general public.

Three organizational concepts guide the structure of ecosystematic design. The first concept is scale. The Arroyo Seco watershed comprises a workable scale, because it can easily be traversed in one day; it is not so large that it cannot be easily

inventoried. Next is design process, the pattern of thought applicable to the ecosystem scale. Lyle divides the design process into three stages: the stage of romance, the stage of precision, and the stage of generalization. These are discusses further in the following section. Finally, order "binds ecosystems together and makes them work" (Lyle 1985). To understand order, we need to understand the structural, functional and locational elements of an ecosystem.

The stages of the ecosystematic design process can be described in many ways. In the context of this project, the team is utilizing a three stage process (Lyle 1985). In the first phase, the stage of romance, members of the project team spent time together and spent time being intimate with the site. Together, members of the team hiked, walked, drove and photographed the watershed. Also important in this early stage, were the discussions, debates and charrettes to solidify a common vision, goals and objectives. Moving from this stage of romance to the stage of precision, members of the planning team began mapping and developed suitability models. Suitability models are analytical maps showing relative suitability (high, medium, low) of a particular human activity or natural system. In our case, the project vision calls for an integration of flood management, stream naturalization, water resources, habitat rehabilitation, and educational and community recreational opportunities. It is in this stage, through mapping and modeling, that the planning team begins to comprehend the structural, functional, and locational elements of the watershed. In Phase II, during the stage of generalization, the team is synthesizing all of the information from the first two stages to develop a Master Plan with demonstration project sites identified and management recommendations.

c. Identify a lead agency for environmental compliance, such as CEQA or NEPA. Describe the program's strategy and timetable on environmental compliance.

Because this is a watershed planning process, CEQA or NEPA documentation is not needed. However, when it comes time to implement in future phases, there are several agencies that will serve as the lead agency on specific programs. Most of the these agencies sit on the Agency Technical Review Committee panel and are willing participants and supporters of project restoration goals.

8. Describe any other important aspects of your program that you could not address in the above items, and that you feel are critical to fully describing your project. *(2 pages)*

a. Education Program

Utilizing a multi-pronged approach of publications, online material, speakers and community meetings, the Education Program component of this project will seek to disseminate the public on watershed management and stewardship. This component is the most far-reaching component of this project and will be a long-term process. Educational topics will include: the nature of a watershed, our watershed, what is watershed management, the plants and wildlife of the Arroyo Seco, water quality in the Arroyo Seco and how you affect it, cultural and recreational highlights of the Arroyo Seco, water conservation for your home or business, regionally appropriate landscaping, local endangered species, the Bay-Delta ecosystem and how you can help, watershed management throughout California, etc.

- The project website will provide an interactive forum for the timely exchange of information about the watershed and educational and action events.
- Brochures will be developed to educate and activate the many users of the Arroyo, including hikers, bicyclists, visitors at the Rose Bowl and the many parks along the Arroyo Seco, students in nearby schools,
- Dynamic slide presentations will be presented to community organizations, neighborhood and environmental groups that educate views about the broad ranges of issues encompassed in watershed management.
- Several different types of tours will be presented of the Arroyo, because direct experience is the best way to fully appreciate the Arroyo and watershed management. There will be hiking tours of specific areas of the Arroyo such as the upper watershed in the Angeles National Forest. There will be bicycle tours along the 11 miles of urbanized stream and van tours. This will be presented for neighborhood and community leaders.
- Community educational meetings will focus on specific issues of importance such as "Can we restore steelhead in the Arroyo?" "Your stake in the Bay-Delta ecosystem," "How to restore a natural stream to the Arroyo Seco," "Water Conservation – every drop helps," "How to plan and maintain a regionally-appropriate, low water use yard."

- In addition to the public forums, there will be focused presentation to landscape architects, facilities managers, gardeners, and other key target groups on effective water management.
- There will also be monthly public tree-plantings, stream clean-ups and watershed restoration activities to get people involved in a direct and personal way. We have found that when people get their hands dirty and their feet wet, the lessons of watershed management and ecosystem science stick with them.

The project will reach out to every resident, business and agency in the watershed to involve them in practical, easy-to-accomplish conservation tips and approaches. We will work through local agencies, such as the Pasadena Water & Power Department and the Los Angeles Department of Water and Power to reach their customers directory through bill inserts, exhibits and displays. It will include BMP projects that can be implemented to provide direct outcomes, ranging from "soft" solutions such as ongoing public education campaigns to construction projects such as stream naturalization and groundwater recharge. The plan will emphasize interagency coordination for a unified, long-term management protocol, identification of effective and cost-efficient BMP's for the prevention and treatment of runoff and stormwater, and the development of implementation projects. Our education program will enhance community and agency awareness, coordination and action.

b. Environmental Justice

One of the most important aspects of the Arroyo Seco Watershed Management Plan Education program is our commitment to address environmental justice issues. As the Arroyo Seco flows from the San Gabriel Mountains to downtown Los Angeles, it travels through some of the most diverse communities in the state of California. The disadvantaged neighborhoods of Altadena, Northwest Pasadena, Cypress Park and Lincoln Heights all lie adjacent to or near the Arroyo Seco, as do the affluent communities of San Rafael, Linda Vista and San Marino.

Residents who live in neighborhoods plagued by noise pollution, poorly maintained facilities, congestion, barbed wires and graffiti can especially benefit from the healing environment that natural streams and open space provide. Yet often these residents are deprived of the opportunity or understanding of the water. Our education and outreach programs will specifically target low-income communities that are underserved by parks, recreational and environmental programs. Because of its diverse demographics, the Arroyo Seco watershed program has unique potential for reaching a broad audience of 500,000 people that truly reflects the face of southern California.

c. Building upon Current Arroyo Seco Watershed Restoration Momentum

The Arroyo Seco watershed project is a major component of an emerging water resources and watershed planning movement in southern California. A combination of factors makes the Arroyo Seco in Pasadena the most promising stream restoration prospect in this region. The Arroyo Seco Watershed Restoration Feasibility Study is one reason for the wide interest and acceptance of a restoration vision. These factors include:

- the spectacular natural character of the Arroyo Seco with parks and open space along most of its course,
- public ownership of the land,
- successful demonstration projects,
- the potential for steelhead and Arroyo toad habitat,
- substantial community and political support to restore a more natural Arroyo, and
- the evolving attitude about flood and watershed management among the public agencies responsible for managing the area.

The current momentum at local, state and federal levels, built up by the Arroyo Seco Watershed Restoration Feasibility Study offers a tremendous opportunity for the vision of stream restoration to become a reality. CALFED support in this effort will be among many past, current and future funding and support efforts. This project is an integral part of the larger planning efforts currently underway by various agencies, consultants, and non-profits for subwatersheds throughout the Los Angeles-San Gabriel River double watershed. The Arroyo Seco Watershed Management and Restoration Plan will eventually be integrated into the existing Los Angeles River Master Plan. Ultimately, the North East Trees and the Arroyo Seco Foundation would like to see this project serve as a regional and national model for restoring natural hydrologic functioning through the removal of concrete. We believe this to be possible in our lifetimes.

North East Trees, Arroyo Seco Foundation						Combined Proposals	
Arroyo Seco Watershed Management Plan & Education Program						#0149, #0060	
	CALFED WATERSHED PROGRAM BUDGET AND PROJECT SUMMARY						
Task #		**Completion date**	**Match $**	**In-Kind Services**	**CALFED funds**	**Total**	**Task Total Ck**
Task 1	**TECHNICAL STUDIES**		**$ 200,000**	**$ 160,000**	**$ 355,057**	**$ 715,057**	**$ 555,056**
1A	Engineering: Hydraulics, Hydrology, Geomorphology	Month 9	$ 75,060	$ 100,000	$ 135,000	$ 310,060	$ 210,060
1B	Water Resources Plan	Month 9	$ 19,965	$ 15,000	$ 35,000	$ 69,965	$ 54,965
1C	Habitat Restoration Plan	Month 12	$ 14,160	$ 15,000	$ 28,190	$ 57,350	$ 42,350
1D	Recreation and Open Space Plan	Month 12	$ 8,075	$ 15,000	$ 20,000	$ 43,075	$ 28,075
1E	Stream Restoration Plan	Month 15	$ 13,640	$ 15,000	$ 54,067	$ 82,707	$ 67,706
1F	Develop Demonstration Project Conceptual Designs	Month 15	$ 33,140		$ 67,760	$ 100,900	$ 100,900
1G	Citizen Watershed Monitoring Program	Month 15	$ 35,960		$ 15,040	$ 51,000	$ 51,000
	Task Product(s): conceptual models with technical analysis; ArcView GIS maps and analysis; management plan and framework documentation; distribution of documentation to Agencies						
	Success criteria: processes, conditions, and connections defined; problems, needs, goals and strategies defined. BMPs and management strategies analyzed and integrated.						
Task 2	**EDUCATION & OUTREACH - "Water-Wise Watershed"**				**$ 249,355**	**$ 249,355**	**$ 249,355**
2A	Development of Education Program	Month 6			$ 54,375	$ 54,375	$ 54,375
2B	Development of Outreach Program	Month 6			$ 38,500	$ 38,500	$ 38,500
2C	Outreach Program Delivery (ongoing)	Month 36			$ 65,665	$ 65,665	$ 65,665
2D	CASAgencies Outreach (quarterly)	Month 36			$ 35,940	$ 35,940	$ 35,940
2E	CASOrganizations Outreach (quarterly)	Month 36			$ 54,875	$ 54,875	$ 54,875
	Task Product(s): Meeting announcements and minutes; photo-documentation. Public outreach presentations about the CALFED Arroyo Seco project; curriculum; pamphlet and other literature; website; tour program; outreach events.						
	Success criteria: Input and coordination with project partners, agency representatives, community organizations and residents; meetings held; attendance from key representatives; attendance by community.						

Task #		Completion date	Match $	In-Kind Services	CALFED funds	Total	Task Total Ck
Task 3	**REPORTS AND PRESENTATIONS**				**$ 58,263**	**$ 58,263**	**$ 58,263**
3A	Quarterly progress reports	Month 15			$ 9,150	$ 9,150	$ 9,150
3B	Draft final report	Month 15			$ 9,150	$ 9,150	$ 9,150
3C	Final report	Month 18			$ 15,915	$ 15,915	$ 15,915
3D	Project Presentation	Month 18			$ 7,658	$ 7,658	$ 7,658
3E	Biannual Reports for Education and Outreach	Month 33			$ 3,690	$ 3,690	$ 3,690
3F	Draft final report of Education & Outreach	Month 33			$ 4,613	$ 4,613	$ 4,613
3G	Final report of Education & Outreach	Month 36			$ 4,613	$ 4,613	$ 4,613
3H	Presentation of Education & Outreach	Month 36			$ 3,475	$ 3,475	$ 3,475
	Task Product(s): Progress reports, incl financial status, milestones reached, products completed, and assessment of overall progress (problems encountered or anticipated). Draft report summarizing project implementation, achievements, product deliveries, financial status. Revised report incorporating feedback; Deliver at least one summary presentation to CALFED.						
	Success Criteria: Input for final report; visitors to the project website; demand for copies of the report; agency interest and support for documents and presentations						
	SUBTOTAL		$ 200,000	$ 160,000	$ 662,674	$ 1,022,674	$ 862,674
Task 4	**ADMINISTRATION 15%**	Ongoing			$ 99,401	$ 99,401	$ 99,401
	Task Product(s): Financial controlling; Completion of tasks and objectives according to schedule; Maintain focus on goals and objectives through regular communication with Calfed and other funders						
	Success Criteria: Fulfill project within budget and in a cost-efficient manner; Fulfill project obligations in an efficient manner with as many tasks complete in-house as possible						
	TOTAL		**$ 200,000**	**$ 160,000**	**$ 762,075**	**$ 1,122,075**	**$ 962,075**

North East Trees					
Arroyo Seco Foundation					Combined Application
					#0149 and #0060
Arroyo Seco Watershed Management Plan and Education Program					
SUMMARY OF NET AND ASF					
Task Description	NET	ASF	Subtotal		Total
TECHNICAL STUDIES					
Engineering: Hydraulics, Hydrology, Geomorphology	$ 205,560	$ 4,500	$ 210,060		$ 210,060
Water Resources Plan	$ 49,865	$ 5,100	$ 54,965		$ 54,965
Habitat Restoration Plan	$ 39,350	$ 3,000	$ 42,350		$ 42,350
Recreation and Open Space Plan	$ 25,075	$ 3,000	$ 28,075		$ 28,075
Stream Restoration Plan	$ 63,206	$ 4,500	$ 67,706		$ 67,706
Develop Demonstration Project Conceptual Designs	$ 96,400	$ 4,500	$ 100,900		$ 100,900
Citizen Watershed Monitoring Program	$ 48,000	$ 3,000	$ 51,000		$ 51,000
EDUCATION & OUTREACH - "Water-Wise Watershed"					
Development of education program	$ 6,000	$ 48,375	$ 54,375		$ 54,375
Development of outreach program	$ 6,000	$ 32,500	$ 38,500		$ 38,500
Outreach program delivery (ongoing)	$ 13,125	$ 52,540	$ 65,665		$ 65,665
CASAgencies Outreach	$ 7,500	$ 28,440	$ 35,940		$ 35,940
CASOrganizations outreach	$ 9,375	$ 45,500	$ 54,875		$ 54,875
REPORTS AND PRESENTATIONS					
Quarterly progress reports	$ 6,150	$ 3,000	$ 9,150		$ 9,150
Draft final report	$ 6,150	$ 3,000	$ 9,150		$ 9,150
Final report	$ 12,915	$ 3,000	$ 15,915		$ 15,915
Project Presentation	$ 5,413	$ 2,245	$ 7,658		$ 7,658
Biannual Reports for Education and Outreach		$ 3,690	$ 3,690		$ 3,690
Draft final report of Education & Outreach		$ 4,613	$ 4,613		$ 4,613
Final report of Education & Outreach		$ 4,613	$ 4,613		$ 4,613
Presentation of Education & Outreach		$ 3,475	$ 3,475		$ 3,475
Subtotal	$ 600,084	$ 262,590	$ 862,674		$ 862,674
Administration 15%	$ 60,013	$ 39,389	$ 99,401		$ 99,401
Totals:	$ 600,084	$ 301,979	$ 902,062		$ 902,062

North East Trees

Arroyo Seco Foundation

Combined Application

#0149 and #0060

Arroyo Seco Watershed Management Plan and Education Program

SUMMARY OF SUBCONTRACTORS

Task Description	MWH	FORMA	Verna Jigour	Subtotal	MATCH $	CALFED	Total
TECHNICAL STUDIES							
Engineering: Hydraulics, Hydrology, Geomorphology	$ 147,460	$ 19,000	$ 21,850	$ 188,310		$ 188,310	$ 188,310
Water Resources Plan	$ 19,250	$ 14,400	$ 6,900	$ 40,550		$ 40,550	$ 40,550
Habitat Restoration Plan	$ 5,000	$ 10,200	$ 6,900	$ 22,100		$ 22,100	$ 22,100
Recreation and Open Space Plan	$ 5,000	$ 8,000	$ -	$ 13,000		$ 13,000	$ 13,000
Stream Restoration Plan	$ 30,506	$ 12,000	$ -	$ 42,506		$ 42,506	$ 42,506
Develop Demonstration Project Conceptual Designs	$ 55,000	$ -	$ -	$ 55,000		$ 55,000	$ 55,000
Citizen Watershed Monitoring Program	$ 5,000	$ 22,000	$ -	$ 27,000		$ 27,000	$ 27,000
EDUCATION & OUTREACH - "Water-Wise Watershed"							
Development of education program				$ -		$ -	$ -
Development of outreach program				$ -		$ -	$ -
Outreach program delivery (ongoing)				$ -		$ -	$ -
CASAgencies Outreach				$ -		$ -	$ -
CASOrganizations outreach				$ -		$ -	$ -
REPORTS AND PRESENTATIONS							
Quarterly progress reports				$ -		$ -	$ -
Draft final report				$ -		$ -	$ -
Final report				$ -		$ -	$ -
Project Presentation				$ -		$ -	$ -
Biannual Reports for Education and Outreach				$ -		$ -	$ -
Draft final report of Education & Outreach				$ -		$ -	$ -
Final report of Education & Outreach				$ -		$ -	$ -
Presentation of Education & Outreach				$ -		$ -	$ -
Totals:	$ 267,216	$ 85,600	$ 35,650	$ 388,466		$ 388,466	$ 388,466

North East Trees										
Arroyo Seco Foundation										
								Combined Application		
Arroyo Seco Watershed Management Plan and Education Program									#0149 and #0060	
NORTH EAST TREES										
*Provide a benefits/salary percentage here				38%						
**Provide a separate itemized budget using this format for subcontracts										
Task Description	Labor Rate*	Hours	Total Labor	Supplies & Materials	Other Costs	Sub-contract**	Stotal per Task	Match	CALFED	Total
TECHNICAL STUDIES										
Engineering: Hydraulics, Hydrology, Geomorphology	$ 75	200	$ 15,000	$ 2,250		$188,310	$205,560	$100,000	$105,560	$205,560
Water Resources Plan	$ 75	108	$ 8,100	$ 1,215		$ 40,550	$ 49,865	$ 18,180	$ 31,685	$ 49,865
Habitat Restoration Plan	$ 75	200	$ 15,000	$ 2,250		$ 22,100	$ 39,350	$ 13,640	$ 25,710	$ 39,350
Recreation and Open Space Plan	$ 75	140	$ 10,500	$ 1,575		$ 13,000	$ 25,075	$ 9,080	$ 15,995	$ 25,075
Stream Restoration Plan	$ 75	240	$ 18,000	$ 2,700		$ 42,506	$ 63,206	$ 13,640	$ 49,566	$ 63,206
Develop Demonstration Project Conceptual Designs	$ 75	480	$ 36,000	$ 5,400		$ 55,000	$ 96,400	$ 13,640	$ 82,760	$ 96,400
Citizen Watershed Monitoring Program	$ 75	280	$ 21,000			$ 27,000	$ 48,000	$ 31,820	$ 16,180	$ 48,000
							$ -		$ -	
EDUCATION & OUTREACH - "Water-Wise Watershed"							$ -		$ -	
Development of education program	$ 75	80	$ 6,000				$ 6,000		$ 6,000	$ 6,000
Development of outreach program	$ 75	80	$ 6,000				$ 6,000		$ 6,000	$ 6,000
Outreach program delivery (ongoing)	$ 75	175	$ 13,125				$ 13,125		$ 13,125	$ 13,125
CASAgencies Outreach	$ 75	100	$ 7,500				$ 7,500		$ 7,500	$ 7,500
CASOrganizations outreach	$ 75	125	$ 9,375				$ 9,375		$ 9,375	$ 9,375
							$ -		$ -	
REPORTS AND PRESENTATIONS							$ -		$ -	
Quarterly progress reports	$ 75	80	$ 6,000	$ 150			$ 6,150		$ 6,150	$ 6,150
Draft final report	$ 75	80	$ 6,000	$ 150			$ 6,150		$ 6,150	$ 6,150
Final report	$ 75	168	$ 12,600	$ 315			$ 12,915		$ 12,915	$ 12,915

Project Presentation	$ 75	60	$ 4,500	$ 113	$ 800		$ 5,413		$ 5,413	$ 5,413
Biannual Reports for Education and Outreach		0	$ -	$ -			$ -		$ -	$ -
Draft final report of Education & Outreach		0	$ -	$ -			$ -		$ -	$ -
Final report of Education & Outreach		0	$ -	$ -			$ -		$ -	$ -
Presentation of Education & Outreach		0	$ -	$ -			$ -		$ -	$ -
Subtotal			$194,700	$ 16,118	$ 800	$388,466	$600,084	$200,000	$400,084	$600,084
Administration 15%									$ 60,013	$ 60,013
Totals:			$194,700	$ 16,118	$ 800	$388,466	$600,084	$200,000	$400,084	$600,084

North East Trees

Arroyo Seco Foundation

Combined Application

Arroyo Seco Watershed Management Plan and Education Program #0149 and #0060

ARROYO SECO FOUNDATION

*Provide a benefits/salary percentage here

**Provide a separate itemized budget using this format for subcontracts

Task Description	Labor Rate*	Hours	Total Labor	Supplies & Materials	Other Costs	Subcontract**	Stotal per Task	Match	CALFED	Total
TECHNICAL STUDIES										
Engineering: Hydraulics, Hydrology, Geomorphology	$ 75	60	$ 4,500				$ 4,500		$ 4,500	$ 4,500
Water Resources Plan	$ 75	68	$ 5,100				$ 5,100		$ 5,100	$ 5,100
Habitat Restoration Plan	$ 75	40	$ 3,000				$ 3,000		$ 3,000	$ 3,000
Recreation and Open Space Plan	$ 75	40	$ 3,000				$ 3,000		$ 3,000	$ 3,000
Stream Restoration Plan	$ 75	60	$ 4,500				$ 4,500		$ 4,500	$ 4,500
Develop Demonstration Project Conceptual Designs	$ 75	60	$ 4,500				$ 4,500		$ 4,500	$ 4,500
Citizen Watershed Monitoring Program	$ 75	40	$ 3,000				$ 3,000		$ 3,000	$ 3,000
EDUCATION & OUTREACH - "Water-Wise Watershed"										
Development of education program	75	240	$ 18,000	$ 27,375	$ 3,000		$ 48,375		$ 48,375	$ 48,375
Development of outreach program	75	240	$ 18,000		$ 14,500		$ 32,500		$ 32,500	$ 32,500
Outreach program delivery (ongoing)	75	575	$ 43,125	$ 5,375	$ 4,040		$ 52,540		$ 52,540	$ 52,540
CASAgencies Outreach	75	160	$ 12,000	$ 7,200	$ 9,240		$ 28,440		$ 28,440	$ 28,440
CASOrganizations outreach	75	320	$ 24,000	$ 14,000	$ 7,500		$ 45,500		$ 45,500	$ 45,500
REPORTS AND PRESENTATIONS										
Quarterly progress reports	75	40	$ 3,000				$ 3,000		$ 3,000	$ 3,000
Draft final report	75	40	$ 3,000				$ 3,000		$ 3,000	$ 3,000
Final report	75	40	$ 3,000				$ 3,000		$ 3,000	$ 3,000

Project Presentation	75	24	$ 1,800	$ 45	400		$ 2,245		$ 2,245	$ 2,245
Biannual Reports for Education and Outreach	75	48	$ 3,600	$ 90			$ 3,690		$ 3,690	$ 3,690
Draft final report of Education & Outreach	75	60	$ 4,500	$ 113			$ 4,613		$ 4,613	$ 4,613
Final report of Education & Outreach	75	60	$ 4,500	$ 113			$ 4,613		$ 4,613	$ 4,613
Presentation of Education & Outreach	75	40	$ 3,000	$ 75	$ 400		$ 3,475		$ 3,475	$ 3,475
Subtotal			$ 169,125	$ 54,385	$ 39,080	$ -	$ 262,590	$ -	$ 262,590	$ 262,590
Administration 15%			$ 25,369	$ 8,158	$ 5,862	$ -	$ 39,389		$ 39,389	$ 39,389
									$ -	$ -
Totals:			$ 194,494	$ 62,543	$ 44,942	$ -	$ 301,979	$ -	$ 301,979	$ 301,979

North East Trees

Arroyo Seco Foundation

Combined Application

Arroyo Seco Watershed Management Plan and Education Program #0149 and #0060

MONTGOMERY WATSON HARZA

**Provide a separate itemized budget using this format for subcontracts

Task Description	Labor Rate*	Hours	Total Labor	Supplies & Materials	Other Costs	Subcontract**	Stotal per Task	Match	CALFED	Total
TECHNICAL STUDIES										
Engineering: Hydraulics, Hydrology, Geomorphology	125	1180	$ 147,460						$ 147,460	$ 147,460
Water Resources Plan	125	154	$ 19,250						$ 19,250	$ 19,250
Habitat Restoration Plan	125	40	$ 5,000						$ 5,000	$ 5,000
Recreation and Open Space Plan	125	40	$ 5,000						$ 5,000	$ 5,000
Stream Restoration Plan	125	244	$ 30,506						$ 30,506	$ 30,506
Develop Demonstration Project Conceptual Designs	125	440	$ 55,000						$ 55,000	$ 55,000
Citizen Watershed Monitoring Program	125	40	$ 5,000						$ 5,000	$ 5,000
Subtotal			$ 267,216	$ -	$ -	$ -	$ -	$ -	$ 267,216	$ 267,216
Totals:			$ 267,216	$ -	$ -	$ -	$ -	$ -	$ 267,216	$ 267,216

North East Trees

Arroyo Seco Foundation

Combined Application

Arroyo Seco Watershed Management Plan and Education Program #0149 and #0060

FORMA - GIS ANALYSIS

**Provide a separate itemized budget using this format for subcontracts

Task Description	Labor Rate*	Hours	Total Labor	Supplies	Materials	Subcontract**	Match	CALFED	Total	
TECHNICAL STUDIES										
Engineering: Hydraulics, Hydrology, Geomorphology	100	190	$ 19,000						$ 19,000	$ 19,000
Water Resources Plan	100	144	$ 14,400						$ 14,400	$ 14,400
Habitat Restoration Plan	100	102	$ 10,200						$ 10,200	$ 10,200
Recreation and Open Space Plan	100	80	$ 8,000						$ 8,000	$ 8,000
Stream Restoration Plan	100	120	$ 12,000						$ 12,000	$ 12,000
Develop Demonstration Project Conceptual Designs	100	0	$ -						$ -	$ -
Citizen Watershed Monitoring Program	100	220	$ 22,000						$ 22,000	$ 22,000
	100									
	100									
Subtotal	100		$ 85,600	$ -	$ -	$ -	$ -			
	100									
	100									
Totals:			$ 85,600	$ -	$ -	$ -	$ -	$ -	$ 85,600	$ 85,600

North East Trees

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Combined Application

Arroyo Seco Watershed Management Plan and Education Program #0149 and #0060

VERNA JIGOUR ASSOC - TECHNICAL STUDIES

**Provide a separate itemized budget using this format for subcontracts

Task Description	Labor Rate*	Hours	Total Labor	Supplies & Materials	Other Costs	Subcontract**	Stotal per Task	Match	CALFED	Total
Habitat restoration plan	50	380	$ 19,000	$ 2,850			$ 21,850		$ 21,850	$ 21,850
Recreation and open space plan	50	120	$ 6,000	$ 900			$ 6,900		$ 6,900	$ 6,900
Stream naturalization	50	120	$ 6,000	$ 900			$ 6,900		$ 6,900	$ 6,900
									$ -	$ -
									$ -	$ -
									$ -	$ -
									$ -	$ -
									$ -	$ -
subtotals			$ 31,000	$ 4,650	$ -	$ -	$ 35,650			
Totals:			$ 31,000	$ 4,650	$ -	$ -	$ 35,650	$ -	$ 35,650	$ 35,650